

AMENDMENTS TO THE CLAIMS

1. **(Currently amended)** A polymethylaluminoxane composition generated by thermal decomposition of an alkylaluminum compound having an aluminum-oxygen-carbon bond, the alkylaluminum compound being generated by a reaction between trimethylaluminum and toluic acid, with toluene as a solvent, wherein: ~~an oxygen-containing organic compound,~~ ~~wherein:~~

~~—— (i) the oxygen-containing organic compound reacting with trimethylaluminum is an aliphatic or aromatic carboxylic acid represented by the general formula (I),~~

~~—— $R^+(COOH)_n$ (I)~~

~~wherein R^+ represents a hydrocarbon group of C1-C20 straight or branched alkyl groups, alkenyl groups or aryl groups, and n represents an integer of 1 to 5;~~

~~(ii) (i) a mole fraction of methyl groups originating from trimethylaluminum, relative to the total moles of methyl groups existing in the generated polymethylaluminoxane composition, is not more than 26 mol%;~~

~~(iii) (ii) the generated polymethylaluminoxane composition has a viscosity of not more than 2.1×10^{-3} Pa·sec at 40°C, and~~

~~(iv) (iii) an aluminum concentration of the generated polymethylaluminoxane composition is in a range of from 9.1 wt% to 9.4 wt%.~~

2-3. **(Cancelled)**

4. **(Withdrawn- Currently amended)** A method of producing a polymethylaluminoxane composition having a mole fraction of methyl groups originating from trimethylaluminum, relative to the total moles of methyl groups of not more than 26 mol% and a viscosity of not more than 2.1×10^{-3} Pa·sec at 40°C, the method comprising the steps of:

causing trimethylaluminum to react with toluic acid, with toluene as a solvent;
~~an oxygen-containing organic compound represented by the general formula (I);~~

~~—— $R^+(COOH)_n$ (I)~~

~~wherein R¹ represents a hydrocarbon group of C1-C20 straight or branched alkyl groups, alkenyl groups or aryl groups, and n represents an integer of 1 to 5, to form an alkylaluminum compound having an aluminum-oxygen-carbon bond; and~~

thermally decomposing the alkylaluminum compound,

wherein a ratio between a mole number of trimethylaluminum and a mole number of oxygen in the oxygen-containing compound represented by the general formula (I) is in the range of 1.25 to 1.40 : 1.

5. **(Withdrawn)** The method of producing a polymethylaluminoxane composition according to claim 4, wherein

the thermal decomposition is conducted in the absence of a Lewis acid compound in production of the polymethylaluminoxane composition.

6-7. **(Cancelled)**

8. **(Withdrawn)** A polymerization catalyst for olefins, comprising as catalytic components:

a transition metal compound represented by the general formula (II),



wherein M represents a transition metal element, and R⁵, R⁶, R⁷, and R⁸ represent organic groups that form together a cycloalkadienyl backbone, such as an alkyl group, an alkoxy group, an aryloxy group, an alkylsilyl group, an alkylamide group, an alkylimide group, an alkylamino group, an alkylimino group, or a halogen atom; and

the polymethylaluminoxane composition according to claim 1.

9. **(Withdrawn)** A method of polymerizing olefins using the polymerization catalyst according to claim 8.

10-15. **(Cancelled)**